

## **REMARKS**

In the Office Action dated May 3, 2007, the drawings were objected to under 37 C.F.R. § 1.83(a) because the Examiner stated that the “plurality of magnetic columns” must be shown. The “plurality of magnetic columns” are shown in the drawings as originally filed in Figure 4, designated N1, N2 and N3. In the written description pertaining to Figure 4, however, those components were referred to as “areas.” The paragraph pertaining to Figure 4 at page 11 of the present Specification has accordingly been amended to refer to those components as “columns.” The term “column” was already used in the Specification in the paragraph at page 10, line 11 and that paragraph has therefore also been editorially amended to refer to Figure 4 at that location. It was incorrect in the Specification to use the reference “1” in this context, and therefore that reference numeral has been cancelled at page 10.

No new matter is added by any of these changes.

Claims 13, 21, 26 and 28 were objected to because the Examiner stated the phrase “being disposed mirror symmetrically” should be “disposed in mirror symmetry.” Applicants respectfully disagree, since the term “mirror symmetrically” was intended to be an adverb phrase defining the verb “disposed.” In order to clarify this point, however, the term “mirror symmetrically” has been editorially amended to “mirror-symmetrically” at all locations.

A repeating typographical error in claims 13, 26 and 28 also was noted (“respective” should be “respect”), and claims 13, 26 and 28 accordingly have been corrected.

The Examiner also suggested that in each of claims 15, 16, 18, 21, 22, 24, 25 and 28-30 the term “permanently magnetic columns” should be “permanent magnet columns.” Applicants fail to see any distinction between these two phrases. Both phrases are grammatically correct and both describe exactly the same structure. Since the Applicants are permitted to be their own lexicographer, Applicants see no need to make any change on this point in the aforementioned claims.

A further editorial change has been made in each of the independent claims, to change the phrase "adapted to" to "configured to." Although "adapted to" has been used with approval in patent claims for several decades, apparently the Patent and Trademark Office has recently promulgated guidelines to Examiners requiring the use of "configured to" in the context for which "adapted to" was previously accepted.

Claims 13, 14 and 26 were rejected under 35 U.S.C. § 102(b) as being anticipated by Carlson et al. Claims 15-20, 27 and 30 were stated to be allowable if rewritten in independent form, and claims 21-25, 28 and 29 were allowed.

The rejection of claims 13, 14 and 26 is respectfully traversed, and therefore claims 15-20, 27 and 30 have been retained in dependent form at this time.

Applicants respectfully submit that none of claims 13, 14 or 26 is anticipated by the disclosure of Carlson et al, for the following reasons.

In each of claims 13 and 26, first and second assemblies are defined, that are respectively mounted at opposite faces of a static magnetic field source. Each of those assemblies is stated to include a first shimming ring disposed at an annular exterior of the gradient coils in the assembly, and a second shimming ring that is also disposed at the annular exterior of the gradient coils, adjacent to the first shimming ring. Each of claims 13 and 26 further states that the second shimming ring in each assembly is mounted so as to permit adjustment of a distance of the second shimming ring from the first shimming ring in that assembly.

Applicants respectfully submit that no such structure is disclosed in the Carlson et al. reference.

As best illustrated in Figure 2 of the Carlson et al. reference, a gradient coil stack is disclosed therein that includes a so-called Rose shim 204 that is disposed adjacent to a permanent magnet 206. The Rose shim 204 has a central opening therein in which three gradient coils 202 and an adaptive magnet shim coil 200 are contained. The three gradient coils 202 and the adaptive magnet shim coil 200 are stacked within the central opening of the Rose shim 204. As stated in the paragraph

beginning at column 4, line 58 of the Carlson et al. reference, the adaptive magnetic shim coil 200 can be included anywhere within the gradient coil stack, if desired. Changing or selecting the position of the adaptive magnetic shim coil 200 within the gradient coil stack, however, does not in any manner change the spacing or distance of the active magnetic shim coil 200 with respect to the Rose shim 204. The adaptive magnetic shim coil 200 is always, regardless of its position in the stack, directly adjacent to the Rose shim 204.

Moreover, in equating the structure disclosed in the Carlson et al. reference with the subject matter of independent claims 13 and 26, the Examiner has ignored the clear distinction, known to those of ordinary skill in the field of magnetic resonance imaging, between a “shim ring” and a “shim coil.” A shim ring is a passive component and performs its shimming function by virtue of currents that are induced therein by other components or surrounding fields. A shim coil, by contrast, is an active component that performs its shimming function by being supplied with a specified current. The Rose shim 204 disclosed in the Carlson et al. reference is an example of the type of shimming ring described in the claims of the present Application, but the adaptive magnet shim coil 200, as explained at column 4, line 65 through column 5, line 6, requires current to be supplied thereto in order to perform its shimming function. Therefore, the Carlson et al. reference does not disclose an assembly with two shimming *rings*, but instead discloses a structure with one shimming ring (Rose shim 204) and one shim coil (adaptive magnet shim coil 200).

Applicants submit that those of ordinary skill in the field of magnetic resonance imaging recognize that the term “shim ring,” as evidenced by the Carlson et al. reference, refers to a passive component, but each of independent claims 13 and 26 nevertheless has been amended to specifically refer to the first and second shimming rings as being passive.


Therefore, not only does the Carlson et al. reference fail to disclose an assembly having two passive shim rings, but also fails to disclose a structure wherein the spacing between two such shimming components can be selectively set.

The Carlson et al. reference, therefore, does not disclose all of the elements in either of claims 13 or 26, and thus does not anticipate either of those claims, nor does the Carlson et al. reference anticipate Claim 14, which depends from Claim 13.

All claims of the Application are therefore submitted to be in condition for allowance, and early reconsideration of the Application is respectfully requested.

(The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.)

Submitted by,



(Reg. 28,982)

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